

lect # 11

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Midterm

ANOVA

~~ASSOCIATION~~

association rules

Bayesian

2 questions

→ lifecycle

Naïve Bayesian classifier

11.5

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$

Bay's Law

$$P(A|B) = \frac{P(B|A) \cdot P(A)}{P(B)}$$

assume that all variable are independent

$$\text{then } P(A \cap B) = P(A) \cdot P(B)$$

Let $A = \{\text{spherical, yellow, } < 60 \text{ grams}\}$

first \rightarrow calculate $P(C_i | A)$ for all $i = 1:n \rightarrow n$ is class number
 \downarrow
 \rightarrow set of attributes
 \rightarrow class number i

then ^{assign}~~assume~~ the set of attributes with most probability

$$P(C_i | A) = \frac{P(A | C_i) \cdot P(C_i)}{P(A)}, \quad P(A | C_i) = P(\{a_1, a_2, a_3\} | C_i)$$
$$= P(a_1 | C_i) \cdot P(a_2 | C_i) \cdot P(a_3 | C_i)$$

Example in S-7 table

Let $A = (\text{female-single, is killed, own, } > 100)$

Required $\rightarrow P(\text{credit-good} | A)$, $P(\text{credit-bad} | A)$
الطلب هو ال class

$$P(\text{credit-good} | A) = \frac{P(A | \text{credit-good}) \cdot P(\text{credit-good})}{P(A)}$$

$$\rightarrow P(A) = P(a_1) \times P(a_2) \times P(a_3) \times \dots \times P(a_m)$$

Note that for $P(C_1 | A)$, $P(C_2 | A)$, ..., $P(C_3 | A)$

all of them have the same